

# CP Series Pressure Sensors for CPAP, BiPAP and APAP Applications

Superior Sensor's CP series combines two pressure sensors in one device creating a pressure sensor subsystem for sleep apnea applications



Superior's CP Series sensor module family builds upon the industry's performance leading SP Series *NimbleSense*™ architecture. For reference, the SP Series integrates an advanced piezoresistive sensing element, ADC, DSP and processor intelligence. The CP Series is a true sub-system that integrates two types of pressure sensors (Differential & Gage). With the industry's best performance, highest integration and lower system BOM, the CP Series is the ideal solution for Sleep Apnea applications.

The CP Series measures dry air and non-aggressive gas pressure with very high accuracy and a stable zero point. Non-linearity is also industry leading and typically within  $\pm 0.15\%$  of selected range. The CP Series employs the proprietary *NimbleSense*™ architecture to create the industry's widest dynamic range and highest performing products supporting ranges as low as  $\pm 250$  Pa for the differential pressure sensor to as high as  $\pm 6k$  Pa for the gage pressure sensor. Competing solutions degrade as the pressure ranges are lowered; but the CP Series with Multi-Range capability maintains optimal performance down to even  $\pm 250$  Pa.

**Optional advanced filtering** –With advanced filtering to remove unwanted noise from the fan output, noise induced mixing errors are virtually eliminated.

## Features

- Dual-sensor air flow controller sub-system designed for BiPAP, APAP and CPAP machines
- Highly Integrated, combining two pressure sensors in one device: differential and gage
- Multi-Range™ – 4 calibrated ranges per sensor
- CP Series Subsystem Enables Selectable:
  - Differential Range ( $\pm 250$  Pa to  $\pm 2.5k$  Pa)
  - Gage Range ( $\pm 2k$  Pa to  $\pm 6k$  Pa)
  - Bandwidth (25Hz to 250Hz)
- 16-bit resolution each channel range
- Ultra low noise, 17.5-bit Effective Resolution
- Very High Accuracy  $\pm 0.05\%$  of Selected Range
- Excellent Long Term Stability
- Output Update Rate up to 500Hz
- Temperature Compensated 5°C to 50°C
- Supply Voltage Compensation
- Standard I2C and SPI Interface
- Advanced multi-order filter to eliminate critical fan output noise (OPTIONAL)

## Applications

- Sleep apnea
- COPD
- Asthma
- Home ventilators
- CPAP
- BiPAP
- APAP